2-2015

Mole Street Journal, February 2015

University of Arkansas, Fayetteville. Dept. of Chemistry and Biochemistry

UNIVERSITY OF ARKANSAS
J. WILLIAM FULBRIGHT COLLEGE OF ARTS & SCIENCES

The Mole Street Journal

Department of Chemistry and Biochemistry

Volume 14, Issue 1 February 2015

Special points of interest:

- Professor Fritsch receives honor
- Start-up company moves to Ft. Smith
- Professor Adams recongnized by NOBCChE
- Professor Stenken awarded grant to study signaling in the brain
- Science Building renamed

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Fritsch and Bobbitt Named NAI Fellows

The National Academy of Inventors (NAI) has named 170 distinguished innovators to NAI Fellow status, increasing the total number of NAI Fellows to 414. The NAI Fellows will be inducted on March 20, 2015, as part of the 4th Annual Conference of the National Academy of Inventors at the California Institute of Technology in Pasadena, CA. U.S. Patent and Trademark Office (USPTO) Deputy Commissioner for Patent Operations Andrew Faile will be providing the keynote address for the induction ceremony. Fellows will be presented with a special trophy, newly designed medal, and rosette pin in honor of their outstanding accomplishments.

The department is proud of the fact that one of its own, **Dr. Ingrid Fritsch**, was named an NAI Fellow. Says Fritsch, "I'm delighted to be named a fellow of the National Academy of Inventors. This recognition validates my vision and efforts toward building up the science and technology base in Arkansas in association with the area's scientific and business community with meaningful impact on the world. Scientific advances do not take place in a vacuum. They require a cooperative endeavor of inspiring people with diverse expertise. I accept this recognition on behalf of the team of co-inventors, students, and collaborators with whom new ideas have blossomed and discoveries have been made. I am also grateful to my university, region, and state, where research and entrepreneurship are encouraged and supported."

Dr. Ingrid Fritsch is a Professor in the Department of Chemistry and Biochemistry at the University of Arkansas. She received a B.S. degree from the University of Utah and a Ph.D. from the University of Illinois at Urbana-Champaign and was a postdoctoral associate at the Massachusetts Institute of Technology. Fritsch has pioneered the field of redox-magnetohydrodynamic microfluidics and developed multifunctional miniaturized analytical devices and sensors, including protein and DNA-hybridization microarrays interfaced to electrochemical detection. This work is important in developing portable devices for environmental and point-of-care chemical analysis. She is the recipient of the 1997 Society of Electroanalytical Chemistry Young Investigator Award, a National Science Foundation Career Award, an NSF Special Creativity Extension, and an American Chemical Society Chemistry Ambassadorship. She holds ten issued U.S. patents (nine licensed), co-founded two startup companies, and currently serves as a Member of the Board of Directors of SFC Fluidics, Inc. (Fayetteville, AR).

Formerly from the department, **Dr. Donald R. Bobbitt** was also named an NAI Fellow. He was awarded patents for discoveries he made in the 1990s as a faculty member. Dr. Bobbitt now serves as president of the University of Arkansas System. Both Fritsch and Bobbitt were recognized by the academy with a full-page announcement in *The Chronicle of Higher Education* on January 16, and will appear in forthcoming issues of *Inventors Digest* and *Technology and Innovation - Proceedings of the National Academy of Inventors.*

According to the academy, election to NAI Fellow status is a high professional distinction accorded to academic inventors who have demonstrated a highly prolific spirit of innovation in creating or facilitating outstanding inventions that have made a tangible impact on quality of life, economic development, and the welfare of society.

To see the full article on the University of Arkansas Newswire, please go to **http://bit.ly/1Lhtl0k**

Faculty News

On the Go

Chen, J.; Site-Selective Seeded Growth of Bimetallic Nanostructures and their Catalytic Applications, Department of Chemistry, Missouri State University, Springfield, MO, January 28, 2015; Brown University, February 5, 2015; University of Oklahoma, March6, 2015.

Publications

G.D. Keeler, J.M. Durdik, **J.A. Stenken**, Localized Delivery of Dexamethasone-21-Phosphate via Microdialysis Implants in Rat Induces M(GC) Macrophage Polarization and Alters CCL2 Concentrations, *Acta Biomaterialia*, 2015, 12, 11-20. DOI: 10.1016/j.actbio.2014.10.022.

J.A. Stenken and A.J. Poschenrieder, Bioanalytical Chemistry of Cytokines - A Review, *Analytica Chimica Acta*, 2015, 853, 95-115. doi:10.1016/j.aca.2014.10.009.

Marion G. Götz, **Hiroko Takeuchi**, Matthew J. Goldfogel, Julia M. Warren, Brandon D. Fennell and **Colin D. Heyes.** Visible-Light Photocatalyzed Cross-Linking of Diacetylene Ligands by Quantum Dots to Improve Their Aqueous Colloidal Stability. *J. Phys. Chem. B*, (2014), 118, 14103-14109.

Lisunova, M.; Dunklin, J.R.; **Jenkins, S.V.; Chen, J.**; Roper, K.D. The Unusual Visible Photothermal Response of Free Standing Multilayered Films Based on Plasmonic Bimetallic Nanocages, *RSC Advances*, 2015, DOI: 10.1039/C5RA00682A.

Jenkins, S.V.; Qu, H.; Mudalige, T.; Ingle, T.; Wang, R.; **Wang, R.;** Howard, P.C.; **Chen, J.;** Zhang, Y. Rapid Determination of Plasmonic Nanoparticle Agglomeration Status in Blood, *Biomaterials*, 2015, accepted.

Technology Company TiFiber™ to Establish Production Facility in Fort Smith

TiFiber was formed in 2010 to commercialize a patented titanium dioxide based nanofiber membrane technology exclusively licensed from the University of Arkansas. TiFiber initially focused on photocatalytic membranes for water and air filtration where there is great need for filtration improvement, especially in cases where high temperature sterilization is required or where biofouling occurs rapidly. In 2013, the company expanded its intellectual property foundation by licensing an additional technology, a family of synthetic antimicrobial polymers, originally developed at the University of Auckland (New Zealand). Initial applications being developed are for personal care products, wound care dressings, medical devices and textiles. Products are currently in the research and development stage and discussions are underway with large, multinational companies for co-development of products.

On December 18, 2014, TiFiber, Inc. announced its plans to locate its pilot production facility and future company headquarters in Fort Smith, Arkansas to further develop and produce innovative new materials that safely and effectively control dangerous microorganisms. Fort Smith was chosen not only because of its historic, strong support for manufacturing, but also due to regional leaders' efforts to attract leading edge, technology-based companies such as TiFiber.

In 2015, pilot-scale production will be established in order to support regulatory certification with the Food and Drug Administration (FDA). Once TiFiber's products have obtained regulatory approval, a full production facility will be established to provide AMP materials to manufacturers for inclusion into their products. It is anticipated that TiFiber's Fort Smith facility will begin significant production in 2017, and create up to 100 jobs by 2019.

Potential applications of TiFiber's AMP technology include soaps, disposable and non-disposable medical plastics, dental cements, wound care (acute and chronic wounds), medical devices (biofilm protection), cosmetic preservatives, and textiles. Initial development work has been supported by a combination of private investment and economic development incentives from the State of Arkansas. "TiFiber's business outlook is very positive, as the company's AMP technology meets urgent market needs. The company is highly likely to create numerous science and engineering jobs in Arkansas," said Dr. Calvin Goforth, interim CEO of TiFiber. "We are very appreciative of financing and tax credits received from the Arkansas Science and Technology Authority, the Arkansas Development Finance Authority, and the Arkansas Economic Development Commission, that are targeted to help create these types of jobs in Arkansas, and which have played a critical role in TiFiber's launch and rapid progress."

This article is an exerpt from PRWeb. The entire article can be viewed at http://bit.ly/15PiE4t.

Dr. Mike Rutheford, TIFiber's Chief Scientist, tests the efficacy of the company's novel antimicrobial polymers (AMPs), which have proven highly effective against many dangerous microorganisms. Mike received his Ph.D. in Chemistry from the University of Arkansas in 2010 under the direction of Professor Xiaogang Peng.

From the Chair - *Wesley Stites*

It has been busy here in Fayetteville. Many of you are aware that several long time faculty members have or soon will retire. What you may not realize is how much work it is to hire a new faculty member and that is why January was a pretty exhausting month for the current faculty. I thought it might be interesting for our alumni and friends to know a bit more about how we recruit and hire new faculty members.

First, in the summer of 2014 we were asked what our hiring wishes for the coming year were. We indicated that we expected two vacancies in August, 2015 and hoped for replacements and new hires to grow the faculty to keep pace with student enrollment growth. Our replacement hires were approved, but we weren't allowed to expand the faculty beyond the current size, at least this year. Next, the faculty began a discussion about what areas in which to hire. This is based on many factors including teaching needs, areas of research that seem likely to be fundable in the future, anticipated retirements, and available space. Ultimately, we decided to look for new assistant professors in the areas of material chemistry and computational biophysics. As soon as advertisements and our recruiting plan were approved (a fairly slow process in the University bureaucracy), we placed ads and started prodding our contacts to find suitable candidates.

Over the next few months, dozens and dozens of applications streamed in, around a hundred for each position, along with even larger numbers of recommendation letters. Even when the areas are narrowly defined as these were, many, many people are interested in faculty positions at a major research university. Two committees were appointed from the faculty and did the hard work of reading every cover letter, curriculum vita, research plan, teaching philosophy, and recommendation letter. They found many great candidates. The hard part was deciding who among this stellar group to actually invite. After each committee had narrowed the applicants to a short list, the faculty as a whole reviewed those files and we collectively met, discussed and voted on whom to interview. We invited four candidates for each position to visit us and present their past and proposed research.

That meant sixteen seminars in just four weeks, hundreds of individual meetings, and lots of discussion. Again the hard part was deciding between fantastic candidates. We voted and then waited again for approval to extend job offers to wind its way through the bureaucratic process. After months and months of work we hope to soon introduce our newest faculty members. Why so much care and thought? Every new faculty member is literally a multi-million dollar bet. A bet that the new person will excel at teaching and research, funded this year by well over a million dollars in start-up costs and commitments to millions more in salary and research space costs. And unlike a horse race, that bet will take years to see if we were right or wrong. Our department has a great track record on placing good bets on new faculty, but with record growth in the student body and an increasingly uncertain funding environment for chemical and biochemical research, the stakes have never been higher. Keep your fingers crossed along with us that this year's bets pay off.

Alumni News

Dr. James Beckman, director of R & D at Therapon

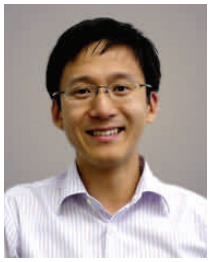
James Beckman graduated in 1965 from U of A with a B.A. in Chemistry. As many of our students do, he continued on to medical school at UAMS, then residencies in general surgery and plastic & reconstructive surgery before returning to Fayetteville and plastic surgery practice 1980-2000. Now retired from practice, he circled back to chemistry in some ways, as he is still very active as director of R & D at Therapon Skin Health, a global skin care products company he founded in 1992.

From years of treating severely burned patients, he realized that there was a large need to restore mobility, suppleness, and softness to skin grafted hands so that patients could again bend fingers or grasp objects. No satisfactory skin treatment was available without prescription. His degree in chemistry from the U of A and a passion for knowing the details of skin anatomy, physiology, and function led to searching hundreds of articles in the library.

This led to lab formulations with clinical testing to find the "ultimate skin restoration cream." The vision was to create a simplified method, a daily skin care system that would restore and rejuvenate aging skin to a beautiful, younger look. Research led to several patents issued or pending. One patent was granted in 2013 for a nanoparticle, based on quantum physics properties, to "trap" 98% of UVA & UVB energy before it gets to the skin surface. Another patent pending stimulates apoptosis (natural cell death) of malignant skin cancer cells when activated by halogen (visible) light rays. Ninety-eight percent (98%) plus of human melanoma cells in living culture were killed in one hour exposure to ordinary halogen light. A third patent, now pending, is for a method of reversing burn injury inflammatory events and symptoms.

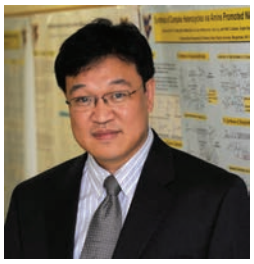
The result was the Theraderm product family that restores sun-damaged or aged skin and produces youthful, natural beauty. It was a natural progression to start a company, Therapon (www.therapon.com) based here in NWA, to provide these new products to other plastic surgeons and dermatologists for their patients.

Upcoming Seminars

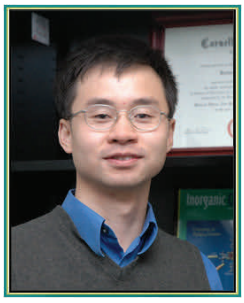


Dr. Toru Shiozaki, Assistant Professor at Northwestern University, will present *"Active Space Decomposition Theory for Excited States and Strongly Correlated Systems" on* February 2 at 3:30 p.m. in CHEM 144.

Dr. Stephan Link, Associate Professor at Rice University, will present "*Collective Plasmon Modes in Nanoparticle Assemblies"* on February 15 at 3:30 p.m. in CHEM 144.



Dr. Xiadong Michael Shi, Associate Professor at West Virginia University, will present "*Catalysis Based on 1,2,3 Triazole Ligand: Chemistry Beyond 'Click'"* on February 23, at 3:30 p.m. in CHEM 144.



Dr. Song Jin, Professor, University of Wisconsin-Madison, will present "*Dislocation-Driven Nanomaterial Growth and Solar Energy Conversion using Earth-Abundant Nanomaterials"* on March 9 at 3:30 p.m. in CHEM 144.

Dr. Elvin T. Price, Assistant Professor, UAMS College of Pharmacy, will present a seminar March 16 at 3:30 p.m. in CHEM 144.

Mr. Les Johnson, Senior Technical Advisor at RRD International, will present a seminar March 30 at 3:30 p.m. in CHEM 144.

UA Chemistry Associate Professor Adams Recognized by The Protein Society

The National Organization for the Professional Advancement of Black Chemists and Chemical Engineers, NOBCChE (pronounced no-buh-shay), is an organization that promotes careers in chemistry, chemical engineering, and related fields as an achievable goal for minority students K-12. In addition, NOBCChE encourages college students to pursue graduate degrees in STEM disciplines. This year's conference brought together renowned scientists and talented young investigators for interactive and informative meetings in New Orleans, LA. The Protein Society received an invitation to attend by **Paul D. Adams**, Ph.D., who was selected as the 2013 NOBCChE President's Award for Excellence in STEM Research and Mentoring.

Associate Professor Paul Adams

The Protein Society Member E-News, December 2014 *http://bit.ly/1A2hTm4*

Stenken to Help Lead $375,000 Interdisciplinary Project

Professor **Julie Stenken** and Physics Assistant Professor Woodrow Shew were awarded $375,000 by the National Institute of Neurological Disorders and Stroke of the National Institutes of Health (NIH) to investigate the interplay of two types of signaling in the brain. Under the grant, the investigators will develop new tools which - for the first time - will measure changes in the electrical signals due to carefully controlled and measured changes in chemical signals within a neuronal circuit. See the full Newswire article at http://bit.ly/1yUrcm6.

The Cautionary Tale of Lysostaphin

Bringing a new drug to market is risky business. Researchers thinking of starting their own company should enter with eyes-wide open and build a solid business team to develop customers and human relationships needed for success. Even then, there are no guarantees. An example of this is the tale of Lysostaphin.

A researcher's dream come true

Lysostaphin is an antimicrobial agent against Staphylococcus aureus, commonly referred as staph bacteria. A company called Biosynexus Incorporated undertook the commercialization of Lysostaphin and things started well. Drug development was supported by an NIH-COBRE/BRIN grant and partially funded by Biosynexus themselves. In the early 2000's at the University of Arkansas, Dr. Jeff Lu (now a senior staff scientist at ArmaGen Technologies) solved the molecule structure's targeting domain as part of his Ph.D thesis in Dr. **Joshua Sakon's** lab (Lu et al. JBC 2006, 281:549).

This industry-university collaboration's success aided the development of lysostaphin as a treatment option against methicillin resistant S. aureus infection. The drug quickly went through Phase I/II trials. A huge advancement in the field at the right time.

A major equity event, the dream of every start-up

In late 2002, Biosynexus teamed up with the pharmaceutical GlaxoSmithKline (GSK) (see http://bit.ly/18yGec). For a start-up bio tech this was a huge coup – investors, a major customer paying royalties, and manufacturing resources helped bring this drug to market. Then in 2005, Biosynexus was bought by QVT Fund LP (see http://bit.ly/1yQBdAF).

Broken dreams

I wish I could say that everyone involved stayed on cloud 9. However by 2006, things were unraveling at the seams. Biosynexus took GSK to court (and won) over technology being transferred to a GSK sub-contractor/competitor to Biosynexus. The case is somewhat complicated and if you're a biotech CEO or founder, I recommend you read it to learn some industry insider practices at http://bit.ly/15YPUHp.

Within a year, the QVT buyout went seriously wrong. QVT refused to pay the Biosysnexus investors full amount, claiming a whole host of faults, such as false representations of drug effectiveness and breached agreements with a third-party license. And of course, the Biosysnexus investors counter sued. (See http://bit.ly/1DcfWRj). The train wreck continued with the Biosysnexus investors later suing the legal firm for legal failures in the contract writing (see http://bit.ly/15YRmt9). It appears on the surface that the Biosysnexus investors won every challenge, but at enormous cost and time. Again, if you're a biotech CEO or founder, I encourage you to read these sources for industry insider practices.

What happened to Lysostaphin?

Well, I'm not completely sure. It seems that Lysostaphin gained a second-life at Bharat Biotech, a company in India. Bharat bought the Lysostaphin patent in 2009 and their website says it is in Phase II trials (see http://bit.ly/15YS4a0).

It is murky whether Bharat's product is the same product as Biosysnexus because research samples can be produced easily and there are many scholar papers. My guess is that Lysostaphin has become the grandmother of a host of new drugs in the fight against Staphylococcus.

Four quick take-aways on Technology Commercialization

1) Startups are very risky and time consuming. And tough, too! Sorry to say, but I have met more than one academic that have problems accepting this. The common statement I hear is: I have a patented idea (like Lysostaphin) and people can't do nothing' without paying me. Sorry to say, but in reality, patents can be bypassed and the real value of an idea is small until an end customer values it. This requires a product go through applied research, Phase I, II, III testing, and reliable manufacturing. Ask the folks at Biosysnexus how difficult things can get.
2) Startups require a balanced, united, talented team; each skilled in their area of expertise. I ask myself, did the root of the legal problems stem from the first GSK license not done right? Did Biosynexus have the required level of legal and manufacturing expertise? Getting the right people is a very difficult thing to do as a start-up. Founders try to balance the cost between people expertise and winning that first big customer needed to keep the company going. This is a trade-off that keeps a CEO up at night. I suggest starting early to find and build your team.
3) Quality of a person's character matters more than IQ or money. More questions: Why couldn't QVT and Biosynexus work things out? Did Biosynexus lie during the buyout process? Did QVT try to squeeze the smaller start-up? Both? All these questions go back to the character of the people involved. It can be tough to follow the spirit of the agreement.
4) Good tech lives on. Lysostaphin was picked up by an ambitious company. Others see the potential and are now carrying the load to provide the final benefits to society.
5) Good people live on. Although the original scientists/founders may not get financially rewarded, that does not mean that they did not significantly contribute to helping society. Their learned skills can carry their careers onward.

Written by Scott Weaver, principle consultant at Arise2, www.arise2consulting.com with significant contribution from ***Dr. Joshua Sakon.***

Student News

Science Building Renamed Discovery Hall

A little confusion now may prevent more confusion later. That is one main reason why the Science Building (four letter building code SCIE) is having its name changed to Discovery Hall (DISC). The Science Building has served as the main home for teaching laboratories for both the Department of Chemistry and Biochemistry and the Department of Biological Sciences for about forty years. And, for much of that time students have confused the Science Building with the nearby Science Engineering Building.

"Homework assignments shoved under teaching lab doors, students wandering into offices in the first few weeks of class looking for their lab; it happens every semester," said Dr. Wesley Stites, chair of the chemistry and biochemistry department, "but when emergency services went to the wrong building twice in two weeks early this fall, that was too much. I understand why the ambulance crews got confused, it confuses everyone. These two calls were for students with long-term medical conditions. Fortunately, no harm resulted from the delayed response, but I didn't want to try our luck any further after that." A suggestion to change the name of the building was quickly approved.

Aside from safety and helping students quickly find the correct building, the name change also points out the investment the University of Arkansas is making in teaching labs. Much of the biological sciences teaching labs will soon move into the new Champions Hall on Dickson Street, across from Science Engineering. Major renovations in the Science Building have been ongoing for years, renovations in the newly renamed Discovery Hall will continue, until in a few years when the entire building will effectively be new. The Department of Chemistry and Biochemistry will expand into space vacated by the Department of Biological Sciences, and advanced biological science laboratories will continue to be taught in Discovery Hall, but all spaces will be updated to meet current needs and modern laboratory standards. These departments will be joined by the Department of Anthropology, which will move in fall 2015 from their current single, cramped teaching lab in Kimpel Hall into three renovated labs in Discovery Hall.

The process of changing the name will take a while to be completed. Signs outside the building have already been changed, but updating maps, information kiosks, and all the documents, and websites that refer to the Science Building will take longer. This will likely cause short-term confusion, but in the long-term the university hopes that Discovery Hall will be a name that everyone understands marks its commitment to provide the best possible facilities to its students. And hopefully, nobody slides their homework assignment under the wrong door at 2:00 a.m. anymore.

Admitted to Candidacy

Dustin Baucom entered the program in the fall of 2013. He received his BS from Northeastern State University in Tahlequah, OK. His advisor is **Colin Heyes.**

Abdullah Qassab entered the Cell and Molecular Biology program in the spring of 2013. He received his BSc and MSc degrees from Salahaddin University in Iraq. His advisor is **Wesley Stites.**

Ayinuola Receives Award

The Younger Chemists Committee (YCC) of the American Chemical Society has recognized **Kolawole Ayinuola** as a recipient of a Leadership Development Award to support his participation in the YCC Leadership Development Workshop. The YCC program recognizes emerging leaders in the profession and helps them prepare for the leadership opportunities at volunteer organizations, such as ACS, and in their professional careers. The workshop was held from Friday, January 23 to Sunday, January 25, 2015, in conjunction with the ACS Leadership Institute in Dallas, Texas. During the workshop, participants engaged in discussions about the characteristics and behaviors of effective leaders, identified leadership skills, developed a person leadership development plan, and learned about leadership opportunities within the American Chemical Society.

7th Grade Science Students Visit the U of A

On Wednesday, November 19, 7th graders at The New School in Fayetteville, AR visited the University of Arkansas campus for demonstrations and a tour as part of an ongoing collaboration between the Middle School at TNS, the U of A, and Missouri University of Science and Technology, to enhance the science experience through "viral learning," partially supported by the National Science Foundation (NSF) and the American Chemical Society (ACS). The purpose of this trip was to acquaint Ms. Heather Overton's 7th grade science class at TNS with U of A science facilities and with graduate and undergraduate students in the research laboratory of Dr. Ingrid Fritsch. The 7th graders learned about probing brain chemistry, energy storage and conversion by building potato batteries, moving microscopic fluids with magnetism and electricity, weighing a single molecule, using X-rays and nuclear magnetic resonance to determine the structure of molecules, and the importance of laboratory safety. Other participants were Willard Keirn and Jade Rundle from TNS, and Drs. **Jim Hinton, Bill Durham, Katarzyna Janowska**, and students **Ben Jones, Mengjia Hu, Adam Kreidermacher, Foysal Khan, and Corinne Songer** from the U of A.

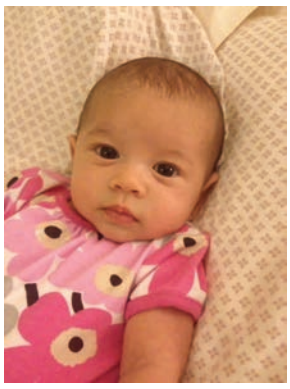
*Ph.D. graduate student **Ben Jones** (middle) hosts the activity on energy (building potato batteries) with TNS 7th graders at the University of Arkansas.*

Impact Ministry with the Morrises

Jacqueline and Scott Morris helped host a Christmas party through the Impact ministry at Cross Church in Springdale. Says Jacqueline, "We had over 100 kids, about 15 parents, and 20 volunteers. We taught a lesson on the meaning of why we celebrate Christmas, Jesus Christ's birth. We had pizza, desserts, and drinks for every person. We did crafts inside the townhouse our church owns, games outside for the boys, a Girl Scout brought every child a hope box to show them that they are loved by God, a goodie bag and stuffed animal for every kid. With the donated gifts we had a drawing for the 55 presents, and a drawing for gift cards for adults. Every adult actually got a gift card to either Subway or Chick Fil A. It was such a blessing to have so many donated gifts from **David and Vicky Hayes, David Paul, Pooja Bajwa and Marlena Patrick!** The weather was great too so we got to be outside. The volunteers were a lot of college kids from our church who just wanted to help out on a Saturday :) such a huge success and everyone had fun!"

Milestones

Marcus and Deepika (Talla) Henze announce the birth of their daughter, Arya Henze, September 30, 2014. Deepika and family live in the San Francisco Bay area. The lure of Biotech industry brought them there from Chicago in mid-October, 2014.



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We're on the web!
chemistry.uark.edu
&
Department of Chemistry and Biochemistry *University of Arkansas

Safety Tip:
by Bill Durham

Peroxides, azides and perchlorates, in general, should not be mixed with any other waste. There are others and you should be mindful of potentially reactive combinations before combining hazardous waste.

Department of Chemistry and Biochemistry

Excellence in the Central Science

Calendar of Events

February
2 Seminar: Toru Shiozaki, Northwestern University, 3:30, CHEM 144
13 CUME - 5:00-6:00, CHEM 144
14 Valentine's Day
16 Seminar: Stephan Link, Rice Univ., 3:30, CHEM 144
23 Seminar: Xiaodong Shi, West Virginia University, 3:30, CHEM 144

March
1 Application Deadline for students who plan to graduate at the end of Spring
8 Daylight Saving Time begins. *Spring forward!*
9 Seminar: Song Jin, Univ. of Wisconsin-Madison, 3:30, CHEM 144
13 CUME - 5:00-6:00, CHEM 144
14 Pi Day - This year is special. Can you guess why?
16 Seminar: Elvin T. Price, UAMS College of Pharmacy, 3:30, CHEM 144
17 St. Patrick's Day
30 Seminar: Les Eric Johnson, RRD International, 3:30, CHEM 144

CUME Dates Announced

Spring CUME Dates:

January 23
February 13
March 13
April 3
April 24

5:00-6:00 p.m., CHEM 144

NOTICE: The Mole is moving to a bi-monthly format. Our next publication will be at the first of April, and will cover news that happens during February and March. Please continue to submit news articles in a timely fashion each month.

ARKANSAS INBRE
IDeA Networks of Biomedical Research Excellence

Save the Date!

The 2015 INBRE conference will be held November 6-7 in Fayetteville, AR.

The department of chemistry and biochemistry at the University of Arkansas strives for excellence in research, teaching and service in chemistry - the central science. We aspire to positions of leadership regarding the discovery of new scientific knowledge, the training of students, and the economic development of the State of Arkansas. We seek to recruit and retain a diverse group of the best faculty, students and staff to address the challenges of the future through interdisciplinary and multi-disciplinary research and education.

Library Hours

CHBC Library (CHEM 225)
http://libinfo.uark.edu/chemistry

Spring Semester Hours: January 11 - May 10

Regular Spring Hours	
Saturday and Sunday	CLOSED
Monday – Thursday	8:00 am – 9:00 pm
Friday	8:00 am – 6:00 pm
Exceptions to Regular Spring Hours	
Friday Mar 20	8:00 am - 5:00 pm
M-Th, Mar 23 -26 Spring Break	8:00 am - 5:00 pm
Friday Mar 27	Closed
Friday May 8	8:00 am - 5:00 pm
Intersession Hours: May 11 - 23	
M-F	8:00 am - 5:00 pm
Saturday and Sunday	CLOSED

The chemistry and biochemistry library resources can be accessed in the following LibGuides: http://uark.libguides.com/content.php?pid=110953. Please bookmark for future use.
Theses and dissertation resources can be found on the following LibGuide: http://uark.libguides.com/content.php?pid=123035 &sid=1057466.